10. SUMMARY OF FINDINGS

This chapter summarizes conclusions drawn to this point from the NODOS Investigation and discusses which initial alternatives will continue through the plan formulation process.

10.1 CONCLUSIONS

Currently, the Sacramento River system between Keswick and the Delta is managed by a combination of hydrology; water use; water resources infrastructure; and local, state, and federal regulatory and resource agency operational decisions. A NODOS project would provide the additional system flexibility needed to balance ecosystem, environmental, agricultural, and M&I water uses. This IAIR is based on a preliminary appraisal of relevant water supply reliability issues and offstream surface water storage opportunities. NODOS would store water to provide additional supplies for use in the Sacramento Valley watershed during shortages and during below-normal, dry, and critical water years. This additional water supply from the Sacramento River also would contribute to statewide supply reliability by augmenting supplies available during dry and critical water years to meet 1995 Bay-Delta Water Quality Control Plan requirements and CVPIA water supply improvement objectives. Furthermore, NODOS would provide additional supply for in-Delta and south Delta water users.

A NODOS project would contribute to supply reliability for environmental water management programs, such as the ERP, CVPIA Refuge Water Supply, Environmental Water Program, EWA, Sacramento River Conservation Area Forum (SB 1086), and the SWRCB Water Quality Control Plan for the Upper Sacramento River Valley. NODOS would allow changes in the timing, magnitude, and duration of diversions from the Sacramento River to reduce or eliminate diversion effects and help assure appropriate flows necessary for critical life stages for anadromous fish and riparian habitat. These capabilities also would help achieve the fisheries restoration goals of the CVPIA and the California Steelhead Restoration and Management Plan. Additional water stored upstream from the Delta would provide increased flows during critical times to help reduce salt intrusion from the Delta; increased flows to flush salts, natural organics, and pollutants from the Bay-Delta system; and improved water quality in the Bay-Delta system for all purposes, including ecosystem restoration and drinking water.

Fully addressing problems in the study area requires the development and management of additional water supplies in the Upper Sacramento River Valley Basin through surface, conjunctive, and groundwater storage programs. Development and management of new water supplies could be accomplished with additional storage and resulting changes in project operation. A NODOS alternative could include groundwater storage, surface storage, or both. A retained measure, groundwater storage downstream from Shasta Dam would likely address both primary NODOS objectives, but none of the secondary objectives. Groundwater storage measures will be evaluated in a more comprehensive manner in the PFR as additional information becomes available from CALFED's groundwater storage investigation. Alternative reservoir locations for the NODOS project were considered within the Coast Range foothills along the western edge of the northern Sacramento Valley. Retained surface storage measures supportive of the NODOS primary objectives included three offstream surface storage measures: Sites Reservoir, Colusa Reservoir, and Newville Reservoir. Although the three surface storage measures addressed both primary planning objectives and provided opportunities for realizing the secondary objectives for the NODOS investigation, all three could also be combined with other measures to increase the benefits of an alternative plan.

For the development of initial alternatives, the three storage measures retained, Colusa Reservoir, Newville Reservoir, and Sites Reservoir, were evaluated for their ability to address the planning

objectives while maximizing project benefits and minimizing any adverse effects on the study area. Since the offstream storage measures were similar, several assumptions were made to simplify comparison of the measures:

- Additional measures screening focused on the offstream reservoir sites;
- All offstream reservoir sites had conveyance and connectivity options; and
- All offstream reservoir sites had comparable anadromous fish measures.

To facilitate the additional measures screening, the offstream surface storage measures were evaluated and compared based on the above assumptions, as well as previous studies conducted at the proposed reservoir sites.

The offstream surface storage measures were compared with respect to their total capital construction costs, their yield, and unit cost per deliverable volume. A preliminary economic assessment was performed to compare the average annual cost per yield for the three surface storage measures. The estimated average annual cost per yield was similar in magnitude for Sites and Newville Reservoirs, but was excessive for Colusa Reservoir. Sites Reservoir's average annual cost per yield was approximately 36% greater than that for Newville Reservoir. However, Colusa Reservoir's average annual cost per yield was about 367% greater than that for Sites Reservoir, and about 500% greater than that for Newville Reservoir. In addition, the capital cost of Colusa Reservoir was approximately 4.4 times that of Sites Reservoir, and 6 times that of Newville Reservoir, while the increase in yield was only around 19 percent. With respect to the federal planning criterion on "efficiency," Colusa Reservoir was dismissed from further consideration as a potential, viable measure for the IAIR.

The Newville and Sites Reservoirs were next compared for their potential impact to environmental/ ecological attributes. The review indicated a significantly greater impact potential for Newville Reservoir. With the exception of potential impacts on the number of state and federal bird species of concern, possible project-related impacts for all the other biological/ecological attributes were higher for Newville Reservoir. With respect to the federal planning criteria on "acceptability," the Newville Reservoir measure was dismissed from further consideration as a potential, viable measure for the IAIR.

Based on these findings, Sites Reservoir will be packaged with other potential measures to develop the best possible alternatives to address the NODOS planning objectives. In the PFR, Sites Reservoir will be compared against and/or packaged with a more specific groundwater storage measure.

It should be noted this IAIR investigation does not preclude the consideration of other offstream storage opportunities as long as appropriate legal, regulatory, and mitigative measures are incorporated as a part of the alternative options. Further information for the Sites Reservoir alternative was documented in July 2000 in the 18-volume *Integrated Storage Investigations North-of-the-Delta Offstream Storage Investigation Progress Report* (Progress Report) (DWR, 2000). The Progress Report summarized the findings and recommendations of the alternatives screening process, and recommended discontinuing the study of the Red Bank Reservoir and Colusa Reservoir alternatives.

10.2 RECOMMENDATIONS

The environmental documentation process was initiated in November 2001 with the publication of Notices of Intent and Preparation for an EIR/EIS for the NODOS project.

The following initial alternative scenarios will be carried forward into the PFR for further development into detailed initial alternatives:

- Initial Alternative A – Environmental Focus (Sites Reservoir);
- Initial Alternative B – Water Quality Focus (Sites Reservoir);
- Initial Alternative C – Water Supply Focus (Sites Reservoir); and
- No-Action Alternative.

Thus, this initial investigation recommends proceeding to the Plan Formulation Study to further develop, refine, and evaluate these alternatives, as well as the federal No-Action Alternative. The PFR will develop the alternatives in greater detail, including more detailed cost estimates and project benefits. The Plan Formulation Study and PFR will determine whether or not a detailed FS and environmental compliance analysis are recommended.

10.3 FEDERAL INTEREST IN CONTINUING WITH A PLAN FORMULATION STUDY

This IAIR concludes there is a potential federal interest in a NODOS project to meet objectives associated with municipal and industrial, agricultural, and environmental water supply reliability; anadromous fish survival; power; incremental flood control storage; and recreation. Given the federal interest in participating in the EWA, a federal interest may exist in having storage north of the Delta to accomplish these goals. The degree and magnitude of the federal interest in a NODOS project will be confirmed and quantified in future planning phases, including the Plan Formulation Study and the FS.

The Plan Formulation Study will develop these aforementioned alternatives in greater detail and will refine costs, estimate benefits, provide a preliminary evaluation of environmental impacts, and identify a tentatively preferred plan and final array of alternatives to consider in the FS. Consideration among Reclamation, DWR, and CALFED Bay-Delta Authority, and other appropriate stakeholders will continue to further define the issues and solicit support in future planning study activities.

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